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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/657,258	09/07/2000	William P. Brown	19417-000111US	3890

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EXAMINER

MASKULINSKI, MICHAEL C

ART UNIT	PAPER NUMBER
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2113

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/657,258

Applicant(s)

BROWN ET AL.

Examiner

Michael C Maskulinski

Art Unit

2113

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 50-65 is/are allowed.
- 6) ☒ Claim(s) 39,42-44 and 46-49 is/are rejected.
- 7) ☒ Claim(s) 40,41 and 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/1/02
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Non-Final Office Action

Drawings

1. The drawings were received on March 5, 2001. These drawings are accepted by the Examiner.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 39, 42-44, and 46-49 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6,148,414. Although the conflicting claims are not identical, they are not patentably distinct from each other because.

Referring to claim 39 of the present application:

- a. Claim 1 of U.S. Patent 6,148,414 discloses a data storage system comprising redundancy group including a plurality of resources (*a first redundancy group in the data storage network*). Claim 7 of U.S. Patent

6,148,414 discloses that each of the AMFs executes in one of a controller, a host bus adapter and a host computer (*a controller device for use in a data storage network comprising a first array management function (AMF)*).

b. Claim 1 of U.S. Patent 6,148,414 discloses two or more array management functions (AMFs) sharing access to the redundancy group, wherein the AMFs provide concurrent access to the redundancy group for associated host systems; and an interconnect medium for connecting the AMFs with the redundancy group (*a first array management function (AMF) that provides access to a first redundancy group in the data storage network; a communication port for coupling to the network, wherein the first AMF is able to communicate over the network with the first redundancy group*). However, Claim 1 of U.S. Patent 6,148,414 doesn't explicitly disclose that the first AMF is able to communicate over the network with one or more AMFs in the network that concurrently share access to the first redundancy group. It would have been obvious to one of ordinary skill at the time of the invention to have the first AMF communicate over the network with one or more AMFs in the network that concurrently share access to the first redundancy group. A person of ordinary skill in the art would have been motivated to make the modification because claim 1 of U.S. Patent 6,148,414 discloses that the first AMF concurrently sends replication data and state information associated with the first resource to the other AMFs. Therefore, the first AMF must be able to communicate with other AMFs over the network.

c. Claim 1 of U.S. Patent 6,148,414, discloses wherein when a first one of the AMFs desires to perform an operation on a first resource in the redundancy group, the first AMF arbitrates with the other AMFs sharing access to the redundancy group for a lock on the first resource, whereupon the first AMF performs the operation on the first resource and concurrently sends replication data and state information associated with the first resource to the other AMFs such that if the first AMF fails while performing the operation, one of the other AMFs is able to complete the operation (*wherein when the first AMF desires to perform an operation on a first resource in the first redundancy group, the first AMF arbitrates with the one or more other AMFs that share access to the first redundancy group for a lock on the first resource, whereupon the first AMF performs the operation on the first resource and concurrently sends replication data and state information associated with the first resource to the other AMFs such that if the first AMF fails while performing the operation, one of the other AMFs is able to complete the operation*).

Referring to claim 42 of the present application, claim 1 of U.S. Patent 6,148,414 discloses two or more array management functions (AMFs) sharing access to the redundancy group, wherein the AMFs provide concurrent access to the redundancy group for associated host systems; and an interconnect medium for connecting the AMFs with the redundancy group. However, Claim 1 of U.S. Patent 6,148,414 doesn't explicitly disclose that the first and second AMFs communicate over the network. It would have been obvious to one of ordinary skill at the time of the invention to have the

first and second AMFs communicate over the network. A person of ordinary skill in the art would have been motivated to make the modification because claim 1 of U.S. Patent 6,148,414 discloses that the first AMF concurrently sends replication data and state information associated with the first resource to the other AMFs. Therefore, the first AMF must be able to communicate with the second AMF over the network.

Referring to claim 43 of the present application, claim 5 of U.S. Patent 6,148,414 discloses that one or more host systems communicate with the first AMF over one of the interconnect medium, an internet connection and a PCI bus (*a bus port that provides for communication with one of a host and one or more controller devices over a bus*).

Referring to claim 44 of the present application, claim 5 of U.S. Patent 6,148,414 discloses that one or more host systems communicate with the first AMF over one of the interconnect medium, an internet connection and a PCI bus (*wherein the bus port is a PCI port*).

Referring to claim 46 of the present application, claim 6 of U.S. Patent 6,148,414 discloses that the interconnect medium includes at least one of a SCSI interface, a fiber-channel interface, a storage area network and a fiber-channel storage area network (*wherein the communication port is a fibre-channel port*).

Referring to claim 47 of the present application, claims 1 and 2 of U.S. Patent 6,148,414 discloses two or more array management functions (AMFs) sharing access to the redundancy group, wherein the first AMF does not release the lock on the first resource until a second one of the AMFs arbitrates for a lock on the first resource

(wherein the first AMF does not release the lock on the first resource until a one of the other AMFs that share access to the first redundancy group arbitrates for a lock on the first resource).

Referring to claim 48 of the present application, claim 3 of U.S. Patent 6,148,414 discloses wherein if the first AMF fails, the remaining AMFs arbitrate for a lock on the first resource, whereupon a second one of the AMFs obtains the lock and completes the operation *(wherein if the first AMF fails, one of the other AMFs arbitrate for a lock on the first resource, whereupon a second one of the AMFs obtains the lock and completes the operation).*

Referring to claim 49 of the present application, claims 1 and 4 of U.S. Patent 6,148,414 discloses two or more array management functions (AMFs) sharing access to the redundancy group, wherein the operation performed by the first AMF on the first resource includes a plurality of steps, wherein the first AMF performs each step of the operation on the resource, and for each step concurrently sends replication data and state information associated with the first resource to the remaining AMFs, such that if the first AMF fails while performing any of the steps of the operation, one of the remaining AMFs is able to complete the operation *(wherein the operation performed by the first AMF on the first resource includes a plurality of steps, wherein the first AMF performs each step of the operation on the resource, and for each step concurrently sends replication data and state information associated with the first resource to the other AMFs that share access to the first redundancy group, such that if the first AMF*

fails while performing any of the steps of the operation, one of the other AMFs is able to complete the operation).

Allowable Subject Matter

4. Claims 39, 42, 43, 44, and 46-49 would be allowable if rewritten or amended to overcome the rejection under the judicially created doctrine of obviousness-type double patenting set forth in this Office action.
5. Claims 40, 41, and 45, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. Claims 50-65 are allowed.
7. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or reasonably suggest when the first AMF desires to perform an operation on a first resource in the redundancy group, the first AMF arbitrates with the second AMF and other AMFs in the network sharing access to the first redundancy group for a lock on the first resource, whereupon the first AMF performs the operation on the first resource and concurrently sends replication data and state information associated with the first resource to the second AMF and the other AMFs sharing access to the first redundancy group such that if the first AMF fails while performing the operation, one of the second AMF and the other AMFs sharing access to the first redundancy group is able to complete the operation.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


U.S. Patent 6,243,829 B1	Chan
U.S. Patent 6,138,247	McKay et al.
U.S. Patent 5,862,312	Mann et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C Maskulinski whose telephone number is (703) 308-6674. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W Beausoliel can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MM


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